RECORD

Book 35

Collection and Field Note Book

No. 35

(July 15, 1952 - Aug. 18, 1952)

(34497 -- 34608)

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Book 35

begin with
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1952 Pacific Ocean 1 3

July 15 - 8-9 pm flying at 8200', eastward from San Francisco.

Sky above cloudless. Flying over a continuous blanket of cloud lying at 5000 thousand feet. The upper surface is level, but marked with low broad, north and south "swells" at rather regular intervals. The surface between is like the sand on a beach, ripplelike in appearance with an irregularly curved arrangement. The blocks of light & dark that are ~~marked~~ packed together to give the appearance. The "swells" are more visible at a distance than directly beneath. Most striking of all are occasional small holes in the surface that have the appearance of vortices or whirlpools. They seem to turn either to right or left with about equal frequency.

July 16 - Niihau, from air. Visibility through broken clouds. Lake toward south end.
Rocky parts very barren. Grass on slopes and ridges dry.
Forest in gullies and gulches, and scattered trees, probably Prosopis, on much of the flat country.
Nothing that looked like native forest seen.

July 16 Gardner Rocks -

Two small rocks, surrounded by cliffs and an extremely rough sea breaking on them. Cliffs black, upper parts of rocks guano-stained. Summit of larger rock appeared covered with dry grass. This not certain.

July 16 - Pearl and Hermes Reef.
Pear shaped atoll, narrowing to southwest. Reef on northeast side very broad. One small islet in the middle of this. 2 small islets, possibly connected on narrow reef to south end. Islets very low and flat. Light too poor to see if vegetated. Lagoon shallow, reticulate with reefs. North-east edge of reef apparently with Lithothamnion ridge, exposed between swells at 7:50 p.m. Rest obviously under water.

July 16 - Midway I.

sight records.
Casuarina equisetifolia
Terminalia catappa
Hibiscus tiliaceus
Vitex trifolia.
Scaevola frutescens
Messerschmidia argentea
Verbesina encelioides
Eleusine indica

Euphorbia heterophylla
Cynodon dactylon
Conyza canadensis
Crinum pedunculatum
Hymenocallis americana
Pandanus tectorius
Stenotaphrum secundatum
Leucaena glauca
Amaranthus viridis!
Zinnia elegans
house fly
Laysan albatross (young)

Trees, mainly Casuarina, have grown up so thick and tall that, from the air, the island has a wooded appearance. Some trees at least 50' tall and 18" or more through breast high. Terminalia large, too.

July 18 - Wake I. - Driving from airport to the west end of south leg of Wake I.

Quite a change in aspect since April - due chiefly to the green herbaceous layer - grasses and especially Euphorbia heterophylla.

The Messerschmidia that looked dead in April near TAL compound is still dead. That that was alive then now looks much fresher and greener.

Heliotropium anomalum in excellent flower, very abundant south of airstrip.

Saw during day
1 common noddy
many sooty terns
many frigate birds.
1 Sula ~~[illegible]~~ sula (just before sunset)

Charlie Johnson reports that the sooty terns at the Loran Station have eggs.

Vial 151 cockroach caught in Pan American Hotel.

July 19 - at sea between Wake and Pokak.

About 1/3 the way, saw one white-tailed tropic bird.

About 2/3 the way saw 4 sooty terns.

July 21 - reef on west side is flat, with a slight lithothamnion rim on the lagoon side, good growth of Halimeda, and a short greenish alga-[illegible] from boat.

Passage at mid-tide, (rising) with a strong current running out but easily negotiated with pram-pan boat.

Lee very quiet, no breakers on lee side.

Several large porpoises or small whales playing and spouting a few hundred m. from ship.

July 20 – Sybilla Islet, n.e. end.

Vial 152 – bottom layer –
Lepisma caught under
bark of dead Messerschmidia
brush, abundant but
hard to catch, undamaged.
Parasitic fly, flying.
another in top layer.
Top layer – 2 cockroaches
from ~~[illegible]~~
~~[illegible]~~ hollow trunk
of living Messerschmidia
tree.

Vial 153 – skinks from
under bark of dead
Messerschmidia.
Very scarce, 3 seen, all
under bark of dead
Messerschmidia trees.

Vial 154 – insects caught
around lights.

Jan 16 – 3 large red hermit
crabs. ~~1 small hermit crab.~~
1 skink caught in tent
1 rat – mangy, blind (?)
1 small rat or mouse.
1 small hermit crab with
banded legs (in shell) caught
on rock flat above h.t.
hermit crabs in bag from great boulder
on tiny islet bet. Sibylla & Pokak above h.t.

small hermit* crabs on top of rocks from beach, Pokak I., above h.t.

Vegetation a sparse
to rather dense
scrub of Messer-
schmidia and Scaevola.
This varies from
1 m. to 4–5 m. tall. When
low it is about an equal
mixture with both
components about the
same height. When
taller, the Messer-
schmidia forms a
top story, with a
denser second story
of Scaevola 1–2 m. tall.
There is an irregular
lower story 1–2 (3) dm.
high of Lepturus and
~~[illegible]~~ Portulaca lutea,
the latter more abundant,
the Lepturus only abundant
in open places, the Portulaca
indifferent, apparently
to shade or sun. Boerhavia
is also present, but
uncommon, and an
unidentified grass is
very local.
Much of the area ~~is~~
especially toward the
outer beach, is of
bare rock, cobble size,
occasionally somewhat
loosely covered with

half-dead [illegible] ... [illegible]. These [illegible] are tangled in the sand.

On the interior [illegible] large sandy [illegible] mottled [illegible] scattered [illegible] [illegible] left [illegible] bare. The ground is full of burrows of white-faced shearwater, which burrows cave in under foot. The birds are breeding now, with eggs. They pretend to be crippled & lead one away from burrows.

At night very large red hermit crabs come out. None are to be seen during the day. They occupy Turbo shells. They may be seen in dozens migrating to the lagoon to soak in the water (pools).

Papers #1 - 3 moths
#2 - many microlepidoptera

Sample 130 - large chunk of black scoria - in outer beach.

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Vial 155 - flying, stinging [illegible], etc. [illegible] on growing tips of Messer-schmidia. [illegible] between branches of [illegible].

Vial 92 - Dermestid larvae under dead booby on inner sand.

Sample 131 - large pebble of coarse white pumice. outer beach.

Sample 132 - small gray pumice pebbles from surface of sandy ground somewhat inland from lagoon beach about in middle of island.

Papers #3 - Lithosiina on boulder ridge, outer beach, above high tide.

 1952 Pokak Atoll

July 21 Sybilla Islet –
lagoon beach

34477
forming crust on coral sand
on beach above high tide.

78
On deposits of fine sand
on rough bedrock rock

79
on branches of Pandanus
tree (most trees without
lichens) in [illegible] [illegible].

34500 Turbinaria ornata J. Ag. (det. Taylor 1955)
common [illegible] [illegible] [illegible],

01 Chroococcus
July 21. Sybilla Islet
seaward beach

02 Albugo platensis
parasitic on Boerhavia diffusa
on boulder [illegible] [illegible] [illegible],

Sample #133 – top layer
of soil in small sandy
opening in interior of north
end of islet – layer about
10" thick.
Vegetation of Thuarea bunch
grass. Surrounded by
Scaevola scrub.

[illegible] gritty [illegible] layer about 1 in. thick, [illegible] [illegible] [illegible] greenish [illegible], [illegible], [illegible] [illegible] [illegible] surface.

[illegible] [illegible] [illegible] [illegible] [illegible]

~~Sample~~ #134

July 21 – [illegible] lagoon beach
slight lagoon side of sand and pebble, being most of distance, just behind expanse of sand flat.
About center of crest is a stretch of ridge pebbly, cobbles and some boulders, piled up some 9' above high tide, about 10 yards wide, with stone crest, inner edge sloping over sand flat – [illegible] above h.t.

This gradually changes to a sandy ridge, then after a short distance a boulder ridge up 5 to 7' above h.t.

July 21 – [illegible]
[illegible] and beach.
at least portion, it is [illegible] boulder ridge, up to 17' high, [illegible] flat on top [illegible] back [illegible] part is sand flat.
[illegible] stacks, of pebbles, cobbles and boulders, ranging [illegible] to sand.
These low stacks in the reef flat with [illegible] large boulders, somewhat [illegible] among the boulders with pedestal [illegible]. [illegible] pedestals [illegible] [illegible] that protrude from [illegible]. Obviously boulders [illegible] on a former higher reef surface

1932 [illegible]

[illegible]

Vent [illegible] - no [illegible] flag.

34503 Boerhavia diffusa — plant reddish, prostrate, flowers pink.
common on broken coral in opening.

04 Lepturus repens (Forst. f.) R.Br. [illegible] Fosb — tufts.
on gravel flat along lagoon beach.

Vegetation near lagoon on northwest corner [illegible] scrub of Scaevola [illegible] sparse, with scattered trees of Messerschmidia in it forming a broken top story. At top of beach in places a narrow band of pure Scaevola. [illegible] places scattered Lepturus.

Inland the [illegible] is pure Messerschmidia, very dense, [illegible] tall with scattered trees [illegible] tall. Patches of Portulaca, [illegible] Boerhavia and [illegible] [illegible]. These [illegible] broken coral. [illegible] in every accumulation of sand Lepturus is added.

1952 Pokak atoll

July 24 – Kamome Islet

Vial 158 – Lepisma – in crevices in rotten log. Sarcophagids + nest bound larvae – attracted to food.
Curculionid – on Pisonia after walking through [illegible]

34505 Sida fallax Walp. — shrub 1.5 m. tall, flowers orange.
dominant in extensive scrub vegetation on lagoon half of islet.

.7 06 Lepturus repens (Forst.) R. Br. var septentrionalis Fosb — loose tufts, culms weakly erect.
in Pisonia grove

.8 07 Pisonia grandis R. Br. — trees 5-6 m. tall, sprouting from roots; leaves bright green; mostly sterile.
dominant in Pisonia groves

.7 08 Messerschmidia argentea (L.f.) Johnst. — to 4 m. tall, rounded, in rather poor condition.
dominant in sparse forest on outer half of islet

.1 09 Lepturus repens (Forst.) R. Br. var septentrionalis Fosb — clumps.
very common in Sida scrub

.9 10 Portulaca lutea Sol. — fleshy, stems spreading – ascending, leaves obovate, fleshy; flowers bright yellow, 1-1.5 cm. across, petals emarginate, stamens [illegible]; flowers still open at 1:15 p.m.
abundant on gravel ridge at top of beach.

.7 11 Lepturus gasparricensis Fosberg (Type) — stiff tufts.
common at top of lagoon beach

9 12 — shrub, dry
on hot dry rocks of boulder ridge

Sample 134 soil in Pisonia clump – layer 1 peaty, formed peat (very local), 0-1". (sample) layer 2 1-11" – brown fine sand, loose. (sample) Surface thickly strewn with Cardium shells, no clear [illegible] + [illegible] trash.

[illegible]
Chiefly third [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
A local sooty tern rookery
in this forest. ground
scarcely showing any
guano stain. Got sample.
Sample #135 from layer
about 15" deep - loose
gray-brown sand, no guano
on surface of ground. Rubble
beneath.
Well out into the open
part of the islet, in the
Sida scrub a small open
place is occupied by another
sooty tern rookery. Nothing
guano stain on surface of ground.
Sample 136 from this
layer 10" deep of loose
gray-brown sand. Rubble
beneath.

[illegible]
[illegible]
[illegible]
[illegible]
[illegible] 137 [illegible]
[illegible]

Sample 138 [illegible]
[illegible]
[illegible]
[illegible]
Layer 1 - 1/2-1" thick,
gray, [illegible] somewhat
greasy. pH 5.5-6.
Sample 138-1 2" thick
Layer 2 - loose, [illegible] as the
material [illegible]
[illegible], gray-brown,
somewhat greasy. pH 7
Sample 138-2
Layer 3 - loose gray-
brown sand pH 8
about 6" thick to rubble.
Sample 138-3

Sample 139 [illegible]
[illegible]
[illegible]
[illegible] 1 [illegible]
[illegible]
[illegible] 18 [illegible]

34520

on open real sand at [illegible] s.w. end of main part of islet

21

on dead Messerschmidia branches.

July 24 – [illegible] islet second segment from east opening near passage.

27

in shallow [illegible] in open place

Sample 141 – soil from bottom of shallow depression in open place surface covered by algal film layer – white with [illegible]
[illegible]
Layer 2 – brown sand [illegible]
sample [illegible]

[illegible]
[illegible]

thin algal film on surface of wet sand.

Sample 142 – [illegible]
[illegible]
[illegible]
under dead Messerschmidia sticks.

1952 Pribilof trip

 1952 Pokak atoll

July 25 Sibylla Isl.

Sample 144 - soil sample from beach ridge near northeast end 100 m. from lagoon beach.
Layer 14"+ [illegible] - coarse sand with roots, very slightly darkened at surface, otherwise light brown.

Sample 145 - soil profile from [illegible] 300 m. from E. end of islet, about in center (10 [illegible]) in sparse [illegible] schmidtia [illegible] sparse Lepturus, some Portulaca and a little Sida.
Layer 1 - 0-5" loose medium coarse gray brown sand, some coral fragments, darkened somewhat at surface. (Surface of small gravel strewn with boulders). Sample 145-1
Layer 2 - ~~[illegible]~~ 10-14" very pale very fine sand compact, friable, with some coral fragments. Sample 145-2

[illegible] Layer 3 - 14-23" - gray-brown fine sand.
Sample 145-3
Layer 4 - 23-33" gray-brown coarse sand.
Sample 145-4
Layer 5 - 33-49" light pinkish rather fine sand with coral fragments. Sample 145-5

Layer ~~[illegible]~~ 6 - 49"-60"+ semi-indurated sandstone, interstices filled with very fine sand of whitish. Water in this layer.
Sample 145-6
Water sample no. TF-2.
Vial 165 - Animals from root crowns of Lepturus repens.

Vial 166 Lizard from on ground. Caterpillar from on ground. Cockroaches, isopods, pseudoscorpions, etc. from under stones. Old ~~[illegible]~~ pupa case from abandoned bird's nest.

Vial 167 - lizard from Messerschmidia [illegible] n.e. end of island.

serrulata Forsk.) J. Agz. (det Taylor 1955)

okamurai Satoh. (det Taylor 1955)

32 *Valonia Farlowii* Harvey (det. Taylor 1955)

33 *Laurencia fragmenta* and *Lithothamnion* not determinable (det. Taylor 1955)
in interstices of [illegible]

34 *Valonia? aegagrophila* C. Ag. (det. Taylor 1955)
[illegible]

35 *Halimeda*

37 *Halimeda*

38 *Caulerpa serrulata* (Forsk.) J. Ag. (det. Taylor 1955)
lining [illegible]

39 *Microdictyon okamurai* Setch. (det. Taylor 1955)
[illegible] on reef surface, mostly
in depressions or [illegible]
but extended [illegible]

40 *Caulerpa*
lining holes in reef surface

41 *Penicillus*

42 *Penicillus*
in holes

43 *Penicillus*

44 *Penicillus*

[illegible]

ptd. from [illegible]
34545 Porolithon
from below [illegible]

July 27 - Kamoana [illegible]
.3 46 Boerhavia diffusa
on broken coral in ~~[illegible]~~ Messerschmidia
forest.
.3 47 Albugo platensis
parasitic on Boerhavia [illegible]

July 27 [illegible] bet.
Bridge and [illegible]
.5 48 Liagora?
in shallow water, at
just below low tide level

Sample 150 - Pisonia
leaves, dried, picked up
from ground in grove
on Kahanu?

Sample 151 - Messerschmidia
leaves, dried, picked up
from ground near [illegible]

Vial 169 - Kamoana [illegible]
Pisonia grove, [illegible]
from dead Pisonia [illegible]
and leaves [illegible]
[illegible] caught [illegible]
apparently [illegible]
[illegible]

[illegible] pink.

prostrate, mat-forming.

growing host on
erect or ascending habit.

pale pink, gelatinous.

Vial 170 - [illegible] from
Lauvola [illegible], caterpillar
eating Messerschmidia leav.
[illegible], spiders and insects
from ~~[illegible]~~ layer of dead
leaves on ground under
~~[illegible]~~ Messerschmidia
[illegible] at top of ~~beach~~ [illegible] -
[illegible] islet
[illegible] islet
[illegible] 171 - bottom layer - insects
from [illegible] [illegible],
including ant colony -
~~[illegible]~~ Coccinellid is from
Portulaca.
Top ~~bottom~~ layer - spiders, [illegible]
larv, etc. from Sida [illegible].

A prominent type is
a scrub, 1-2 m. tall, of
Scaevola ~~[illegible]~~ sericea
either pure or with scattered
~~Messerschmidia~~ [illegible] trees.
This is commonly so
dense as to impede
walking through it.
It is also of a characteristic
bright green or yellowish
green color. It generally
covers the ground completely.
It is often ~~usually~~ on rock
or broken coral but
by no means always.
The low spreading
branches when covered
by wind-blown sand
send out roots and form
new plants, thus [illegible] forming thickets.
The other woody
type is a ~~[illegible]~~ usually
low thin scrub of
Sida fallax. This
varies from .5 to 2 m. tall,
and from rather sparse
to so dense as to be
unpleasant to walk
through, but offers no
real obstacle because
of the weak nature
of the shrubs. This
may be a practically
pure stand, but more

often has scattered [illegible]
~~[illegible]~~ [illegible]
Found in association
with *Lepturus*, *Portulaca*,
& *Boerhavia*, [illegible]
[illegible] of [illegible].
[illegible]
[illegible] sand
[illegible]
[illegible] extensive aspect
of [illegible]
[illegible] usually on
the [illegible]. The
[illegible]
by [illegible]
[illegible]. Here the *Sida*
is usually mixed
with [illegible]
the [illegible] species.
This type [illegible]
[illegible] into
a [illegible]
with [illegible] species
of *Lepturus*. [illegible]
more luxuriant aspect
this is on sand and
is also occupied by
[illegible].
On this ground [illegible]
in rock [illegible]
available ~~[illegible]~~ grass
habitats it is very
sparse and [illegible]

[illegible]

1 [illegible] islet [illegible] p. 3

2 West islet [illegible]

3 [illegible] islet — see pp. 22-27, 30.

The sparse outer belt of ~~Messerschmidia~~ [illegible] varies from half the width of the islet to less than one fourth. [illegible]

Comparison of 1945 and 1951 photos shows that the Pisonia forest patches are gradually growing. Also that the relation of Sida to grassy areas in the open part is not a constant but a shifting one. The gray places in the photos are Sida, the salt and pepper parts are where shearwater burrows are abundant, mostly grassy.

Dark portion on scalloped coast, lagoon side is bare rock, undercut by water.

Sandy patches on seaward side on or in from gravel ridge have much Portulaca in openings between Messerschmidia trees. Some also on boulder ridge and bare rock on S.E. corner of islet. Some Scaevola here.

[illegible]

4 Large islet — see p. [illegible]

Lagoon half has a [illegible] of [illegible] with [illegible] Lepturus and sparse Messerschmidia. [illegible] lagoon and [illegible] lagoon [illegible] except for [illegible] which is a small patch of ~~Messerschmidia~~ [illegible] with [illegible] Messerschmidia. Surrounding all of this to seaward is sparse Messerschmidia [illegible] forest, with nothing much below except scattered Ipomoea [illegible] plants, the [illegible] and proximal parts of the branches of these alive, distal parts all dead.

Seaward from this is an arcuate belt of bare broken coral, mostly without vegetation, locally with Messerschmidia. This does not come back very far toward the lagoon at the south end.

Outside this is an actual belt of sparse Messerschmidia and Ipomoea with locally

(cont. p. 90)

17 inches long, metatarsus 17½", middle toe 1½", tarsus 1½", middle toe 2⅝", claw ⅝".

When a small boat crossed the lagoon and made a splashing disturbance that frightened some of these birds many of them would rise in the air. Occasionally they would snatch food from the surface of the water, and now and then, especially around evening, it was possible to watch them pursuing bonitas to pirate their day's catch of fish. It is a rare sight to watch these two superb fliers in an aerial contest. Contrary to the general opinion, it was observed that the bonitas often got away without disgorging their food.

Red-tailed tropic bird —
These were [illegible] fairly common, mostly flying over most of the islets and some found incubating eggs in small [illegible] on all except ~~[illegible]~~ [illegible] the islets, except [illegible]. About a dozen [illegible] young were seen, also. These have black and white barred feathers on wings and back, [illegible] pale red [illegible] and black bills. The [illegible] acquired in the adults.
[illegible] in guarding their eggs. They squawk at anyone who approaches but will not leave their eggs even when their red [illegible] tail feathers are rudely pulled out. As with most of these sea-birds, they will bite vigorously when molested.

White-tailed tropic bird —
Only one of these was seen, flying over the seaward side of [illegible].

Red-footed booby — These appear to be the commonest booby, at least as seen during the daytime. They may be found scattered, roosting in the trees in all parts of the islands. On [illegible] Messo[illegible] [illegible] others were seen, but are less common and [illegible] fewer than [illegible]. During the day they are seen much more often sitting in the trees than flying, so it is probable that they do their feeding at night. Judging from the guano accumulations, each bird must have a particular branch that is his favorite roosting place. They do not seem to be gregarious in the sense that they congregate in groups. They may be approached closely, only attempting to fly when actually molested and sometimes when a person is within a very few feet. One, when disturbed, disgorged half a dozen fair sized squid.
A very few young birds were seen, and one bird incubating an egg in a nest in a tree.

of the behavior of Polioptila is at all typical it does not seem likely that sooty tones contribute materially to guano accumulations.

 1952 [illegible]

[illegible]

[illegible] at [illegible] [illegible] [illegible] [illegible] in the [illegible] southern [illegible] during the winter season, [illegible] enough to [illegible] a significant population surviving here.

Golden Plover –
These are seen now and then, two or three at a time, [illegible] few [illegible]. They are mainly in the same plumage as in the winter, mottled golden and dark above, whitish below. Five individuals were seen, however, [illegible] at one time (C. J. Johnson) in the handsome [illegible] plumage, dark brown beneath, with prominent white eyebrows and white line along the sides below the wings.

Wandering Tattler –
These are [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] time.

Turnstone –
A few of these were seen along the sea and beaches, usually in twos or threes, sometimes in association with tattlers and plovers.

Bristle-thighed Curlew –
Curlews were seen more commonly than on any of the more southern islands. They were mostly on [illegible] Bigej and Kamone (of Kwaj. Atoll? on [illegible]). Usually they were associated

Reef heron

These were seen frequently in various situations - lagoon ~~reefs~~ beaches, passage and seaward reefs, also inland and even on reef on west side of the atoll.

White ||||
Mottled |||
Dark |||

194[illegible] Pokak atoll

General

The first several days spent on the atoll were hot and dry. Clouds were usually to be seen, but small and scattered. Feb. 21-27 there were a few scattered showers, not enough to more than moisten the surface of the ground.

There were no weeds. The only animals that might have been introduced by man were the rat and the skink.

Rattus exulans was fairly common. Half a dozen were seen at about sundown while walking along base-line I cut in search. Quite a number were attracted to camp and came out at dusk and after and to forage in garbage pit and around camp.

The skinks were fairly common, but not so much as is on other islands in the northern Marshalls. They were also small, relatively.

The large red hermit crab is common. It inhabits mostly Turbo shells, a great preponderance in Turbo [illegible] (Length? [illegible]) [illegible] in Turbo [illegible] and very few in other large shells. No crabs [illegible] the shells were seen [illegible] [illegible] patterned [illegible]. They live on the reef patches in the lagoon, [illegible] low tide level, perhaps elsewhere. It is probable that the population of Coenobita is limited by the number of Turbo shells that are thrown ashore.

The crabs rest during the day around and under the edges of logs and large rocks, perhaps elsewhere. Shortly before sundown (5:17) they start toward beaches. On lagoon side they enter water. On seaward side they are very cautious about the waves, only seeming to go as far as the upper limit of wave-wash.

At night they wander around the island.

[illegible] Inlet ctd.)

mostly coral / broken strewn / rubble, boulders / with [illegible]

patches of [illegible] on [illegible]
On the outside is an extensive ridge of broken coral with [illegible] vegetation - some Messerschmidia, some Lepturus, some Portulaca, Lepturus [illegible] especially in sandy spots.

Stretching across the islet back of and ~~[illegible]~~ north of the large reentrant on lagoon side is an area of Scaevola scrub with a few scattered Messerschmidia trees. This is mostly quite dense, but directly back of the reentrant a strip of it, apparently corresponding to the channel, is not sparse.

The inner portion of the south (smaller) section from the lagoon beach to about two thirds the way to the seaward beach is open Messerschmidia scrub forest, the central part [illegible] like the [illegible] [illegible] on sand and gravel. Back of this, especially toward the south east corner

[illegible]

the substratum is bare irregular rock surface. This has [illegible] [illegible] about 1 m. [illegible]. Where the scrub forest starts there is ~~[illegible]~~ a layer of about [illegible] m. of rubble and gravel ~~[illegible]~~ over the rock.

The outer portion from the rock to the seaward beach is wind-blown sand, with [illegible] Scaevola and Messerschmidia scrub up to 3 m. tall, strikingly wind-[illegible], in rows parallel with the wind with strips of bare sand between them. The sand is well mixed with pebbles and cobbles.

Along the passage beach is a ~~[illegible]~~ ridge of broken coral changing to sand about half way to the lagoon.

In the passage are two coral gravel bars, depressed [illegible] with a strip of reef conglomerate edgewise, and a great rubble flat seaward.

5 [illegible] [illegible] The
vegetation of the
islet is
generally arranged
in longitudinal belts
of varying width.
Along the lagoon
beach there is a
low sand ridge [illegible]
[illegible]
[illegible] [illegible] high ridge
with sparse Portulaca,
and Messerschmidia
on it, occasionally
some Boerhavia, in [illegible] (scaevola in middle part of lagoon beach)
sand at places it changes
to a high ridge of coarser
material - pebbles, cobbles,
and a few boulders, about
9' above high tide level in
the lagoon and about 4.5' above

level of sand in interior
(at lowest place this sand
is only 2.5' above h.t. but
average seems to be about 4.5')
The ridge has Messer-
schmidia with Portulaca
and Boerhavia, little grass.
There are several stretches
of such ridge along the

lagoon side, especially
toward the [illegible] end.
Trees ~~[illegible]~~ of
the Messerschmidia
along the lagoon shore
present a rather
bedraggled appearance,
with many dead limbs.
This is probably due to
birds roosting in the
trees.
In from the lagoon
shore is a belt of
sand flat, with
sparse Sida scrub,
Lepturus, Portulaca,
a little Boerhavia, and
scattered trees or clumps
of Messerschmidia.
The [illegible] [illegible]
[illegible] [illegible],
[illegible], the ground
honeycombed with
tern burrows and the
footing insecure because
the burrows cave in
when stepped on. This
area, when sampled
had a layer of very
fine gray-brown sand
on the surface up to 2" deep.
On the aerial photos it
presents a salt & pepper appear-
ance because of white sand

The passage south of Sibylla was dry, water-squeezed except for a pool of salt water about halfway between ocean and lagoon. The passage probably only carries water during unusually rough weather, unusual high tides.

5 On the 1945 photos the new [illegible] + [illegible] trails [illegible] [illegible] visible. [illegible] not at all evident in the 1951 photos, nor could they be located on the ground.

The passage has evidently filled in very much since 1945 and vegetation on the southwest end has become more abundant.

6 Small islet just [illegible] of Sibylla - scrubby mixture of Messerschmidia and Scaevola, [illegible] thin around edges. Much more developed than in 1945.

7 Next islet. - Mainly covered in Messerschmidia - rather sparse, especially on [illegible] central shallow flat not far from the beach, extending down to include most of the passage beaches and the whole [illegible] and some Scaevola interior but sparse. A dense patch of Scaevola scrub in center. Scaevola on two ends of lagoon beach, not in center.

Broken coral ridge along outer side, with Messerschmidia sparse. Along lagoon beach a gravel ridge fading out southwestward. Gravel and sandy flats on passages and seaward sides being colonized, mostly by Messerschmidia.

Next passage deeper, dry at low water, S-shaped. Gravel flat being colonized.

 1952 Pokak Atoll

8 [illegible] x — a [illegible] west of lagoon [illegible] a low flat [illegible] ridge interrupted to seaward by a stretch of sand. Interior flat [illegible] gravel with pretty thick [illegible] Messerschmidia [illegible] without undergrowth of Scaevola, a [illegible] scrub, this [illegible] inland from sandy beach. [margin: part of lagoon beach.]
Along seaward side [illegible] toward [illegible] end, a [illegible] boulder ridge, a boulder gravel flat. [illegible] Messerschmidia and [illegible] Ridge gets lower and [illegible] smaller westward.
West end is gravel flat with [illegible] [illegible] tiny [illegible] thin to scattered Scaevola and Messerschmidia [illegible] abundant small Lepturus tufts between them.
Then it ~~[illegible]~~ [illegible] thins out to an extensive bare gravel flat just being colonized by both kinds of Lepturus [illegible]

[illegible] Scaevola and Messerschmidia. This vegetation [illegible] [illegible] trace of vegetation in [illegible] places.

9 Next islet — very small islet — no vegetation, just flattened boulders [illegible] high and wide, [illegible] long, very pitted. Hermit crabs and Littorina on them.

10 Pokak Islet — [illegible] end a gravel flat being colonized as in western extremity of islet #8.
The lagoon beach is lined from end to end, except at extremities, by a great sand ridge up to 12' high above h.t. level. Toward seaward side ground becomes more and more rocky. Some boulder flats in seaward half.
The eastern half of the islet is solid Scaevola scrub, with scattered Messerschmidia. Toward east it is sparse enough to walk around in between clumps.

Aug. 7 - Bikar islet

Vial 176 - miscellaneous insects, - tettigoniid caught flying in scaevola [illegible] [illegible] on [illegible] gravel in [illegible] at s. end [illegible] [illegible] in spiders web.
[illegible] generally flying in open gravel beach.
small ants in Pandanus axils (open leaves)
small spider, - [illegible]
Lepturus - [illegible]
in nest cavern of [illegible] [illegible] when [illegible].

Vial 177 - miscellaneous animals caught associated with Scaevola frutescens.

Vial 178 - 2 [illegible] and nest with young in rolled Scaevola leaf.

Vial 179 - [illegible] round hole in [illegible] nest - holes made by crabs? - young [illegible] emerging. [illegible] within.

[illegible] is [illegible], also [illegible] grown [illegible] [illegible]. surrounded almost completely by a sparse belt of Messerschmidia, [illegible], mixed with Scaevola.
Along the south part of the shallow indentation on the west side of Messerschmidia and [illegible] practically [illegible]. Southward along the west side [illegible] and the sand ridge is [illegible]. At [illegible] the edge of the Pandanus [illegible] in [illegible]. Triumfetta is [illegible] common, [illegible] and [illegible] Lepturus [illegible]
At the south end the Messerschmidia belt is wider in places dense enough to be called scrub forest. Portulaca common in [illegible] and [illegible] beach. also Lepturus. East side Messerschmidia and Scaevola belt narrow sparse with some Lepturus and yellowish

see p. 147. + 146

[illegible]

Jun 19 – small hermit [illegible]

[illegible]

[illegible] around [illegible]

[illegible]

[illegible]

[illegible] 164 [illegible]
120 in [illegible] shells.
[illegible] in [illegible] shells.
[illegible] shells [illegible]
[illegible] in other kinds of shells.

Rat [illegible] common, [illegible]

Jun 19 – small hermit
crabs from under [illegible]
[illegible] a feet [illegible]
[illegible] shells and
[illegible] shell [illegible]
[illegible]
[illegible] in [illegible]
[illegible] from [illegible]
head [illegible] islet. [illegible])
2 rats from around [illegible]
[illegible] from [illegible] above
high tide. Bikar Islet.
Aug 1 ghost crab Almani Islet.
1 shore crab from
beach-rocks in passage
between Almani & Jalablia Islet.

 195? Bikini Atoll

[illegible]

Caulerpa peltata Lamouroux (det. Taylor 1955)

[illegible]

[illegible]

[illegible]

Udotea indica A. and E.S. Gepp (det. Taylor 1955)

53 Microdictyon okamurai Setch. (det. Taylor 1955)
in cavities and crevices

54 Halimeda
in cavities in upper surface

55 [illegible]
on Microdictyon

56 Liagora
[illegible]

57 Caulerpa serrulata (Forssk.) J. Ag. ? (det. Taylor 1955)
in cavities in upper surface of coral

surface of reef platform
at outer edge of reef

58 Neomeris vanbosseae Howe (det. Taylor 1955)
on surface

59 Microdictyon okamurai Setch. (det. Taylor 1955)
tufts in crevices and
irregularities

[illegible]

dark green to grass green, [illegible]

pink, slimy

plants curved green
browned somewhat by
exposure to sun and drying up.

 1952 [illegible]

4520 [illegible]
5 [illegible]

4 [illegible] serrulata (Forssk.) J. Ag. (det. Taylor 1955) [illegible]
[illegible]

2 [illegible]
[illegible] in [illegible]
[illegible] ceranoides Lamx. (det. Taylor 1955)
abundant on [illegible]
[illegible] [illegible]
abundant, [illegible]
[illegible] edge of [illegible]

Aug. 7 [illegible]
[illegible] forest [illegible]
65
[illegible] of large [illegible] tree
66
[illegible] of large [illegible] tree

Sample 153 – [illegible] in [illegible] forest – [illegible] [illegible]. [illegible] [illegible] [illegible] [illegible]
Peat layer [illegible] very dark brown – [illegible] consolidated layer – [illegible] and pale [illegible] pebbles.
sample [illegible]
[illegible] sand layer 12–15" or more. light brown – sample [illegible] from [illegible]

[illegible]
4 top [illegible]
1 [illegible]
2 [illegible] – 5
3 [illegible] 4
4 bottom 5

[illegible]
[illegible] of [illegible]
[illegible].

greenish, brown, [illegible].
pink [illegible], [illegible].
[illegible]

Sample 154 [illegible] that [illegible] – for total analysis. [illegible] loose, [illegible], very [illegible] by [illegible] roots – not [illegible] but noticeably.

Sample 155 – phosphate [illegible] layer 2–3" thick [illegible] up by [illegible] roots [illegible] top 1.5" exposed to air.

17

rock 156-10 gravel – sample 156-9

 155 – Bibar [illegible]

[illegible] – [illegible]
[illegible] forest

Sample 157 – Peat, [illegible] somewhat
stained with green [illegible]
and consolidated [illegible]
from beneath it. [illegible]
[illegible]. This is [illegible]
near the [illegible] side
of the inlet.

Sample 158 – Peat 3-4" with
around roots, at [illegible]
of sample (Kiewnia 157-1)
pH – [illegible] Truog test

4.5	3
5	7
5.5	1
6	2
6.5	5

[illegible] 11 tests
all pH 6

Fragments of [illegible]
[illegible] pieces [illegible]
[illegible]
[illegible] below at
sample 157-2

[illegible]
of inlet.

Sample 159 – [illegible]
[illegible]

Sample 160 – yellow
[illegible]
[illegible]

 1952 Bikar atoll

Aug. 4 Bikar Islet
Central sand

18567 Portulaca lutea Sol.
in coconut grove, north end of islet, [illegible].

8 68 Pandanus tectorius Parkinson
in coconut grove at edge of Pisonia forest.

5 69 Pisonia grandis R.Br.
in edge of Pisonia forest — in forest [illegible] stand.

5 70 Portulaca lutea Sol.
common on flats at edge of forest on south end of islet

3 71 Lepturus repens (Forst.) [illegible]
common on sand edges of forest in open places

6 72 Boerhavia diffusa L.
common in [illegible] open places at edge of forest, especially in west side of islet.

stems succulent [illegible] leaves fleshy, [illegible] yellow 1.5 cm. across, petals emarginate, stamens 30–35

spreading rounded tree [illegible] m. tall, fruit [illegible] ground beneath [illegible] rather small.

Tree [illegible] m. tall, trunk [illegible] [illegible] [illegible] (–1.5 m. thick), [illegible], [illegible] from [illegible], [illegible] from the [illegible] from ground beneath the

plant, spreading, almost prostrate to ascending, fleshy, stems red [illegible], [illegible] all eaten out by insects. [illegible] all [illegible], [illegible].

prostrate, forming large mat from thick root [illegible], stems red; leaves [illegible] dull green, [illegible] beneath. flowers [illegible] open in morning, closed in afternoon, fruit immature.

Aug. 1 - Jabwero [illegible] islet.
Low gravel bar not more than 2 feet above high tide level. Rock flat to seaward.
On part of bar above high tide is a patch of Pisonia(?) [illegible], fairly luxuriant.
Here is a rookery of thousands of sooty terns. Hundreds of eggs and thousands of newly hatched young, not feathered at all yet, & alive. Many dead ones.
Very little evident guano. Slight dark staining in spots beneath slight crusts in surface of sand (Sample 161) of sand cemented with guano.
Sample 162 from upper 4 inches of sand in rookery (not where there is [illegible]).

Island rather wide but not especially [illegible] sharp & it slopes from [illegible] windward reef in lagoon. [illegible]

Aug. 1 - [illegible] islet
Pisonia forest [illegible]
[illegible]

Sample 163 - profile in Pisonia forest 4 feet about [illegible] [illegible] [illegible] brown-stained [illegible] layer 1
Sample 163-1
Layer 2 - cemented sand, at least 1" thick
Sample 163-2.

Sample 164 - Profile, Layer 1 - [illegible] pale brown peat 5" thick.
Sample 164-1

Layer 2 - cemented sand 2" thick.
Sample 164-2

Layer 3 - coarse pale brown sand 4"+
Sample 164-3.

Vial 136 - Animals from under rotting Pisonia wood in peat in Pisonia forest. Animals, mostly isopods, many [illegible].

 1952 [illegible]

[illegible]

34 ° 17 [illegible] (Fnd. [illegible]
abundant, [illegible]
[illegible]
[illegible]
[illegible] of beach.

75 [illegible]
abundant [illegible]
[illegible]
[illegible]

[illegible] on inner side of edge [illegible]
[illegible] edge of [illegible]

78a [illegible]
[illegible]

79 [illegible]
on [illegible]

80 [illegible]
in interstices of [illegible]

81 Valonia (fragments) (det. Taylor 1955)
in interstices of branched
sponge or soft coral

82 Udotea indica A. and E. S. Gepp (det. Taylor 1955)
in interstices of branched
sponge or soft coral

83 Caulerpa urvillIana Mont. (det. Taylor 1955)
in holes in coral

84 Microdictyon okamurai Setch. (det. Taylor 1955)
in holes, crevices, etc
in coral

85 Halimeda
on outer side of ~~[illegible]~~
ridge exposed to waves.

[illegible], [illegible]

[illegible] plant [illegible]
spreading [illegible]
flowers yellow, 1-2 in.
diam. petals emarginate,
[illegible]

[illegible]

[illegible] ~~[illegible]~~
[illegible]

green, [illegible]

[illegible]

green

green, [illegible]

compact tuft

 1957 Bikar Atoll

[illegible] – Bikar [illegible]

Vial 173 – [illegible] [illegible] [illegible] [illegible]

Vial 174 – [illegible]

Vial 175 – [illegible]

Vial [illegible] – [illegible]

Aug [illegible] Bikar [illegible]

Vial 194 – [illegible] from hole in broken off Pisonia tree – about [illegible] gallons of water with decomposing leaves and wood. Was all drowned in water.
Vial 195 – [illegible] Pisonia forest – [illegible] common.

Vial 196 – [illegible] [illegible] from [illegible] [illegible] Pisonia forest [illegible] from [illegible] [illegible]

Vial 197 – Insects and spiders caught in Scaevola frutescens on open gravel flat. Termite flying.
Paper 17 moth caught in Scaevola frutescens.

Papers 18, 19, 20 moths caught around lights, Bikar Islet Aug. 9, 1957

Vial 198 – Insects caught sweeping Lepturus repens tufts Aug. 11.

Vial 199 – Insects caught in Pisonia forest. Cucujid? crawling on bark of Pisonia. Other beetle flying.

Vial 200 – Tettigoniids caught around camp. Other insects caught in Messerschmidia. Aug. 12. Bikar Islet.

Bryainvillea nigricans Duce. (det Taylor 1956)

Udotea indica A. and E. S. Gepp det Taylor 1956

Valonia? utricularis C. Ag. (det Taylor 1956

Penicillus

Penicillus

small tufts, pink.
fragile
small rounded dense pinkish.

Polycephalum (det. Taylor 1955)

[illegible]

almost all of the
turtle nesting activities on
Bikar Islet. Only a few
tracks and a turtle
were noted on [illegible],
a few on the south
part of [illegible], but
none on [illegible].
[illegible] is rocky
and has no [illegible]
sand.

 1952 Bikar atoll
9 islets

1 Bikar Islet - Largest islet elliptic in shape with a prolongation to south and one to north. South projection is mostly bare rock. North projection is a gravel flat with a low sand ridge along the west side. This low sand ridge becomes much higher along the west side of the Pisonia forest to 15'?, and continues around on the south-east side. In places, especially about opposite the southernmost part of the coconut grove, wave action is cutting into this sand ridge. Here a series of buried shingle-like soil profiles are exposed, the top one about 15" below the surface of the sand, the second is a foot below that. The gray-brown layers are slightly more compact than the loose sand and the color gradually grades downward to that of the unaltered sand.

[illegible] shingle-like.

Soils of the Pisonia forest are best [illegible] by phosphate hardpan. This brown [illegible] is greatly [illegible] by deposition of varying quantities of [illegible] sand, [illegible] from the sand ridge [illegible] and [illegible] in the surface [illegible] as chunks and slabs of hard-pan pushed up from below the [illegible] roots, or by roots of Pisonia trees tipped over by storms.

[illegible] action of the sand

Rising from a [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] a few [illegible]
and some Boerhavia. [illegible]
~~[illegible]~~ Lepturus. [illegible]
[illegible] ~~[illegible]~~ [illegible]
[illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] beach.

On the southwest end
there is a broad area of
[illegible] [illegible] gravel
flat with [illegible]
bed almost dead Messer-
schmidia ~~[illegible]~~
bushes sprouting from
base, a few seedlings, a
small patch of Lepturus
and a few plants of
Portulaca.

Around the southwest,
south, and southeast
sides the beach is gravel
and there is almost no
Messerschmidia, only
a narrow irregular [illegible]
strip of Lepturus with
some Portulaca and Boerhavia.

Toward the northeast
end this strip gets
wider and a belt of
Messerschmidia appears

covering fairly sand,
[illegible] and, [illegible]
edge looking [illegible] to the
seaward side. Portulaca
and Lepturus, with little
Boerhavia [illegible] between
sparse Messerschmidia.

Along the entire seaward
side ~~[illegible]~~ and
extending ~~[illegible]~~ to the
north, of the islet is an
irregular [illegible] flat
with little soil. Some
Portulaca, a little Lepturus,
[illegible] [illegible] the highest
area of this.

6 Gravel bar west of north
of this islet, a [illegible] - very
[illegible], no vegetation
[illegible] [illegible] the numbers
of [illegible] on the [illegible]
[illegible].

Wandering tattler -
one to three, often individuals
usually seen on
beaches and reef flats
especially on seaward
sides of islets.

Golden plover - single
individuals, rarely
small flocks up to 7,
commonly seen on all
islets, especially around
edges on beaches and
reef flats. Seen with tattlers
and turnstones on occasion.

[illegible]

The coconut crab [illegible] [illegible] the [illegible] [illegible] of [illegible].

Note: Capt. Phillips said that coconut crabs were very common on Bikini(?) in the [illegible], that the [illegible] and that he personally [illegible] coconut [illegible].

[illegible] said that [illegible] coconut [illegible] for this reason [illegible].

Various cockroaches from ship. Species probably introduced in Rongelap(?) and Bikini with equipment and supplies taken ashore for surveying party.

Aug. 16 - [illegible]
[illegible]

Kahoolawe - vegetation cover of plateau [illegible] localized, [illegible] completely bare [illegible] red.
[illegible] eroded [illegible] from 20° to 35° apparently [illegible] of slopes, [illegible] ~~[illegible]~~ 30°-40° slope [illegible] 5° and 45°.

Aug. 17 - Kahoolawe [illegible] to Honolulu.
Some areas on plateau are grassy with scattering shrubs. Most of it is bare red dirt. Many of the gentle slopes are apparently grassy. [illegible] ravines have [illegible] of red muddy [illegible] running from them [illegible] ~~west~~ [illegible] north side is red.

East Maui - several of the most recent lava flows on the south side of Haleakala, where they reach the sea have apparently no vegetation. Others have a thin cover. Lava slopes further up have a sparse cover. Other spots have a good growth. [illegible]
[illegible] the slope of Haleakala [illegible] steep [illegible] with very sparse cover but in [illegible] the center of the south coast is a [illegible] area of gentler slope, [illegible] at about [illegible] the slope perhaps 10°, that above becoming much steeper and rougher. The relatively smooth 10° slope is grassy.

Lanai - there are still large bare ~~[illegible]~~ earth areas of the west central plateau. Much bare on west end.

600

129	10	163	133
131	11	164	133
132	11	165	134
133	12	166	134
134	13	167	134
135	30	168	135
136	30	169	135
137	31	170	135
138	31	171	135
139	31	172	135
140	32	173	138
141	32	174	138
142	33	175	139
143	34	176	147
144	34	177	147
145	36	178	147
146	39		
147	43		
148	43		
149	43		
150	43		
151	98		
152	99		
152a	137		
153	118		
154	119		
155	119		
156	121		
157	126		
158	129		
159	129		
160	127		
161	132		
162	132		

198 200